Department of Rehabilitation and Special Education

THE TAPE MEDIUM AND THE VISUALLY IMPAIRED

AN INTRODUCTION FOR THE REHABILITATION TEACHER

Robert G. Utrup
Rehabilitation Teacher
October, 1979

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PREFACE

This publication introduces you, the rehabilitation teaching student, to the tape medium and its usefulness as a communications technique for the visually impaired adult in a rehabilitation program. From this work, it is hoped that you will become familiar and comfortable with the tape medium and understand its role in rehabilitation teaching instruction. It is also hoped that this work will encourage you to expand your knowledge and expertise in this ever growing/ever changing communications area.

Specifically, the work discusses the technology of change, and how it effects the teaching of communications to the visually impaired adult. It also introduces you to the Philips tape format, and offers suggestions for acquainting your clients with this standard cassette tape design. The work goes on to illustrate various teaching techniques such as sending a cassette letter, protecting a recording from erasure, winding an unravelled tape, recording telephone information, and cleaning and demagnetizing the record/playback head. It also touches on the important task of recommending the purchase of a cassette recorder depending on the needs of the client. A glossary is provided so you can become well versed in the terms commonly associated with cassette tapes, cassette recorder functions and accessories, and power supplies. All in all, this brief introduction to the tape medium will help you meet some of the real and practical communications needs of the rehabilitation client.

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INTRODUCTION

The tape medium is becoming an important communications system not just for the visually impaired but for society as a whole. The spread of this communications medium is common in the health care field, education at all levels, business and industry, and in the home. The implications for rehabilitation teachers are clear--with teaching time and monies a precious commodity, the tape medium fills many a communications gap. The visually impaired person can be taught to "read" books and magazines, "write and read" friendly letters, take course notes, "jot down" telephone information, and keep a confidential business record with just a few hours of instruction. This is compared to the many hours it takes to teach a client braille, typing, Optacon, and handwriting for daily living activities.

With the exception of a few specially designed machines, the visually impaired client operates within the same electronic confines and market arena as the sighted person: phono plugs, patch cords, telephone induction cords, hand-held cassette machines, machines with a wide range of phono jacks, and literally hundreds of other items find their way into the home of the visually impaired client with the aid of the local audio shop. Thus, for the person who does not own a modified cassette recorder, and who does not use special library services--and many do not--the world of sound through cassettes is the same as for anyone else.

The difference between the sighted and the visually impaired cassette machine user is that the visually impaired person must rely on the cassette tape medium to do more for him. Therefore, the visually impaired usually become more knowledgeable than their sighted counterpart because they become field testers of products and armchair experts on such subjects as phono jacks, power supplies, recorder functions, cassette tape quality, and much, much more.

To aid the visually impaired client in gaining the knowledge and expertise in this area, the rehabilitation teacher can 1) encourage the client to explore the area of cassette tapes and machines 2) provide the client with a basic understanding of the tape medium and how it can meet everyday needs 3) share resource information dealing with special equipment, special services, and the like, and 4) provide basic instruction on adaptive techniques.

Keeping Ahead of Planned Obsolesence

Rehabilitation teachers will, at times, feel that technological advancements are counter-productive, especially with the rapid speed with which tape recorder models change. However, a closer look at the effects of technology on this specific area of rehabilitation will lift the spirits and renew old commitments. Over the last few years

technology has combined the most useful recorder functions into a single machine; it has reduced the storage space needed for machines, tapes, and the like by making products smaller and easier to use; it has increased the portability of the cassette medium while at the same time it has decreased the cost per hour of using battery power; it has made available entire sound libraries for the nations physically handicapped students and workers; it has contributed immensely to the goal of mainstreaming the handicap into society; and it has given the visually impaired student an alternative to braille.

FACE TO FACE WITH A CASSETTE TAPE RECORDER

Relating to an inanimate object such as a tape recorder is a difficult task for some people. This distaste for the world of machines makes it difficult for some clients to "warm up" to a cassette recorder as a means of communicating with others. Recording a friendly letter, for instance, is a laborious and nerve-racking experience if the client fears that the device in front of him cannot do the job. When this happens, and it commonly does, the client will be pensively leaning over the built-in microphone practically speechless, offering "Hi, honey. How are you? I am fine." style of prose.

Help your client overcome the fear of voice recording by telling him to relax and pretend that he is sitting across the kitchen table from the person he is talking to. Continue by demonstrating how a built-in microphone will adequately pick up voices two and three feet away, and from all sides, so that a comfortable sitting posture will do the job. If the client is still uneasy with this set up, then he may be more comfortable using a remote microphone with an on/off switch. By the way, your ease at using the cassette recorder will be contagious, and will help the client understand the tape medium as an everyday means of communicating.

A great many people do not like the sound of their voice on tape. I have no magical solutions to offer except that I believe the real problem is that people are unfamiliar with the sound of their voice, and that once they become accustomed to their unique vocal qualities, little else is said on the subject. On the technical end, some recorders are equipped with a pause switch which allows the operator to stop and start the recorder without placing on the tape that annoying "click-clunk" sound produced by the on/off switch. Consequently, the pause switch makes for a much smoother recording.

INVESTIGATING THE CASSETTE TAPE DESIGN

Although cassette machines vary a great deal in design from manufacturer to manufacturer, the cassette tape design is for the most part standardized. The design of the common cassette tape, technically known as the Philips tape format (Salm, page 7), measures 2½" wide and 4" long, and approximately ½" thick at its thickest point. The durable plastic-type case encloses the supply and take-up reels, and anywhere from 30 to 120 minutes of recording tape. The inexpensive cassette has a permanently sealed case, whereas the more expensive cassette is fastened together with small screws making disassembly easier. A plastic window in the center of the cassette allows the user to take visual note of how much tape has been used. This window may be of use to the partially seeing client when held in the proper light.

For purposes of clarity, describe the "working edge" of the cassette to the client, pointing out the tape openings and their exact functions.

The working edge has two small openings and three larger ones. The larger openings permit entry of the erase head, record/playback head, and the pinch roller (Salm, page 9). The record/playback opening is distinguishable as the center opening, and the only opening with a pressure pad behind the recording tape. This pressure pad keeps the tape securely pressed against the record/playback head during operation. The erase head and pinch roller openings exchange functions when the tape is turned from side one to side two. See Figure 1. Opposite the working edge is--for practical purposes--the "tab edge" or the edge that has two small tabs set into place. When the tabs are in place, they push on a small pin-like

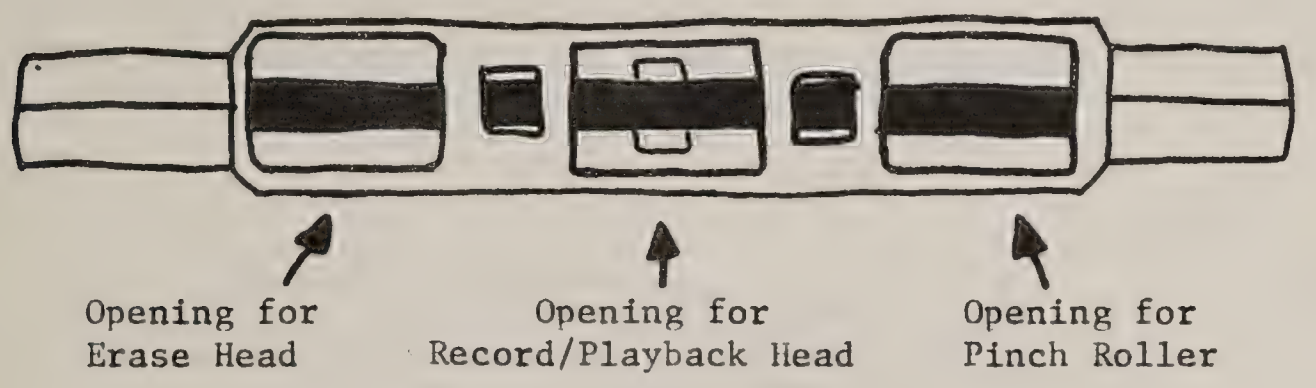

Figure 1: The working edge has two small openings and three larger ones. The larger openings permit entry of the erase head, record/playback head, and the pinch roller.

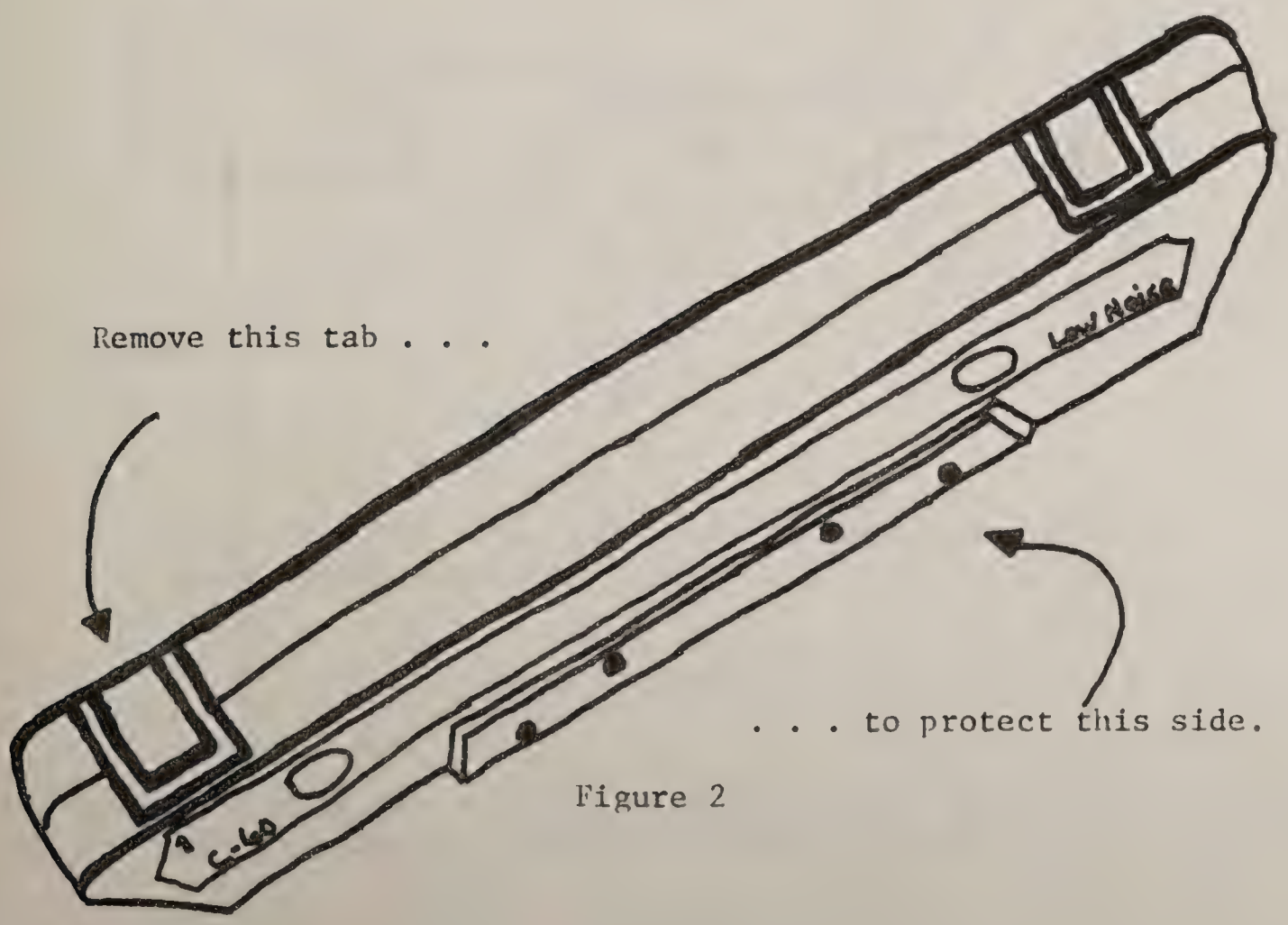

Figure 2

mechanism in the left rear of the cassette well, which in turn, unlocks the record button. Underneath each tab is a small opening. When a tab is removed, the pin slips into this opening, leaving the record button locked so it cannot be depressed. Clients can manually lock and unlock the record button to observe this particular tape recorder function.

INSERTING A CASSETTE TAPE

Cassette tapes are loaded into cassette machines with the take-up reel (empty reel) on the right. To find the side with the empty reel, the visually impaired client must hold the tape firmly in the center and tap the upper right and left corners. The side that produces the hollow-rattling sound houses the empty reel. See Figure 3.

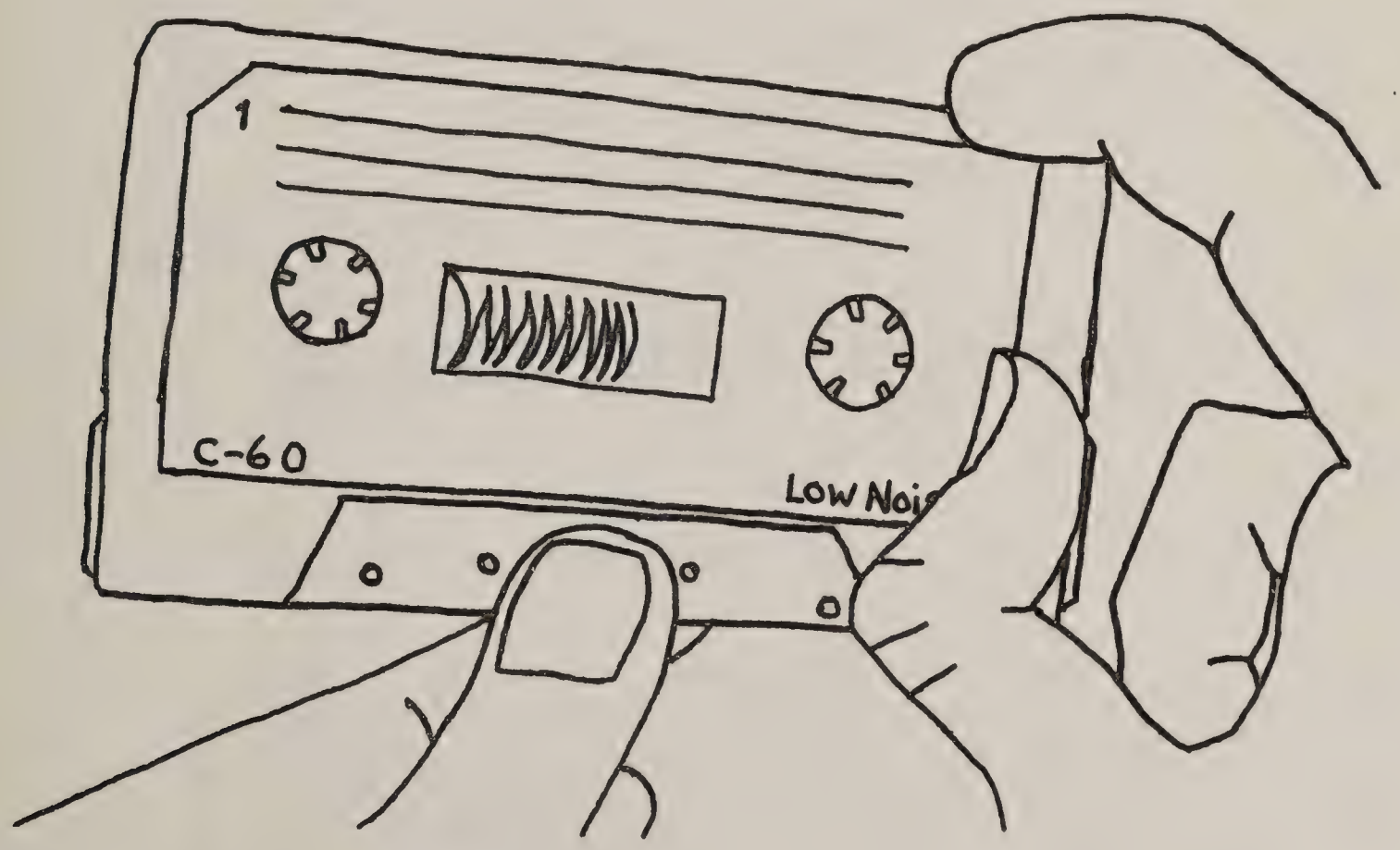

Figure 3: The side that produces the hollow-rattling sound houses the empty reel.

SENDING A CASSETTE LETTER

Sending a cassette letter is simply a matter of dropping the recorded cassette tape into a transparent, soft plastic cassette box, placing an

address card over the tape, and sealing the box with transparent adhesive tape. The soft plastic boxes are more durable than the cardboard cassette mailing containers, and definitely more "mailable" than the rigid plastic boxes that house new cassette tapes. See Figure 4. When two people correspond frequently, a reuseable address card can be employed--the mailing and return addresses on one side of the card become the return and mailing addresses, respectively, on the other side.

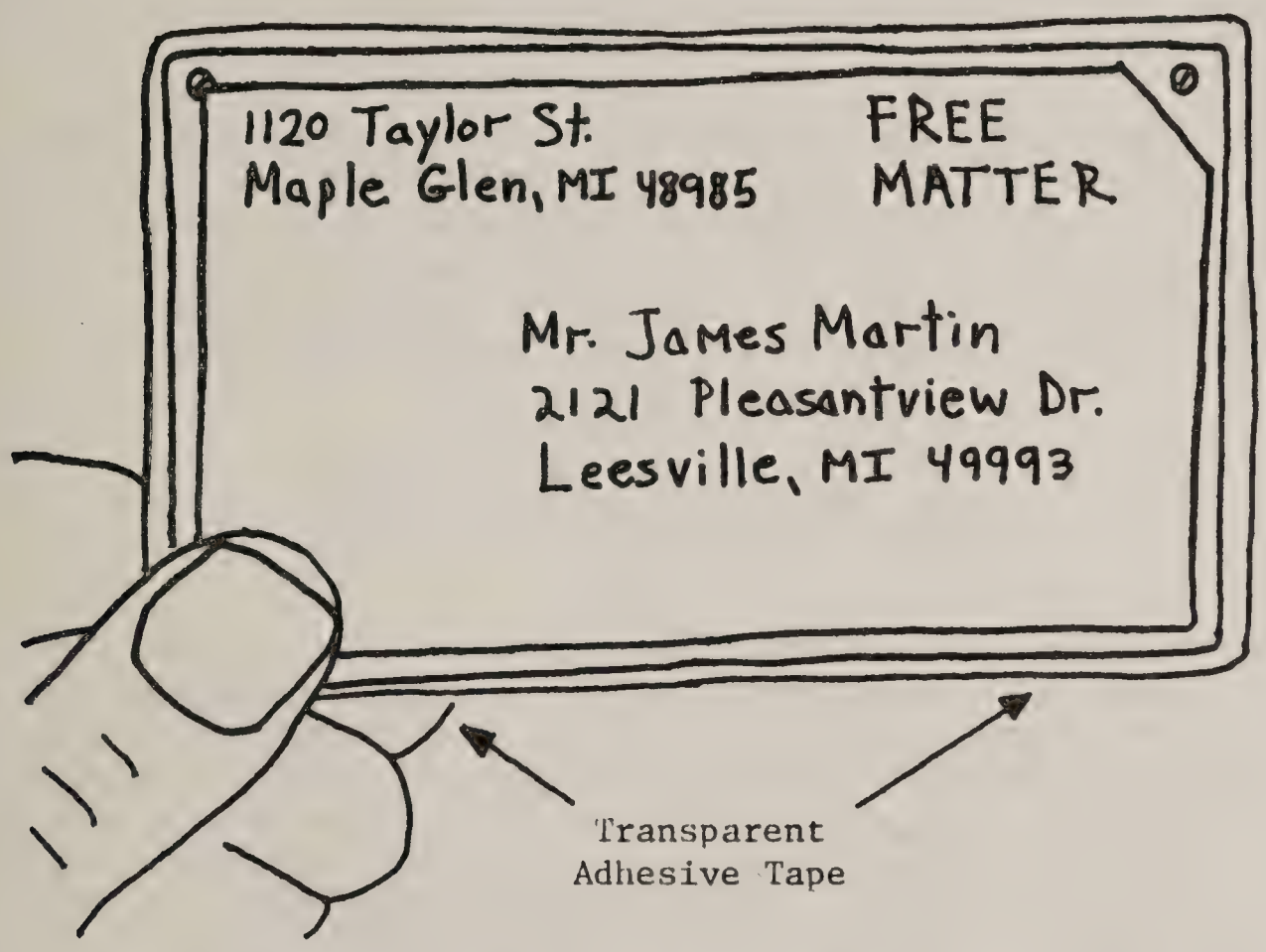

Figure 4: Sending a cassette letter is simply a matter of dropping the cassette tape into a transparent, soft plastic cassette box, placing an address card over the tape, and sealing the box with transparent adhesive tape.

READING 4-TRACK CASSETTE BOOKS

The concept of a 4-track tape is sometimes a difficult one for clients to master, especially the older client. When explaining this concept, it is much easier to drop the term "track" and substitute the term "sided." Therefore, you and your client can speak in terms of four-sided cassette tapes. Technically the terms are not synonymous; however, for practical purposes, it is an excellent substitute.

Cassette tape in hand, explain to your client that the tape has been recorded twice on each side. Go through the motions of: putting side one

in the cassette machine with the "side" switch on the cassette machine in the "1-2" position, and say, "side one"; remove the cassette tape, turn it over and place it back into the machine without touching the side switch, and say, "side two"; remove the cassette tape and turn it over again, put it back into the cassette player, move the side switch to the "3-4" position, and say, "side three"; finally, remove the cassette tape, turn it over again, put it back into the cassette machine without touching the side switch, and say, "side four." Repeat this demonstration as many times as needed. Clients sometimes ask if the tape has to be rewound in order to move to the next side. The answer is no--playing side three completely through, for example, automatically places the tape at the beginning of side four.

Four track tapes are economically and ecologically here to stay--a four track tape recorded at 15/16 ips contains four times the information than a two track tape recorded at the standard speed of 1-7/8 ips. Some machines are now being manufactured to play and record four track, so that it is now possible "to get the job done" using a minimum of tape. Remember, a two track tape can be played on a four track machine, but not vice-versa.

DIRECT LINE-IN RECORDING (DUBBING)

Tape recorder jacks--though seldom used--can be great communications aids for business or recreation. It is important that your clients learn the functions of these jacks so they can get the most out of their particular brand of recorder. For simplicity sake, refer to the various radio, phono and tape recorder jacks as either output or input jacks. Output jacks are those that are used to take sound out of the unit. Common output jacks are "earphone, headset, monitor, and auxillary out" (abbreviated AUX OUT). Input jacks are those that are used to put sound into a unit. Common input jacks are "microphone" (sometimes abbreviated REM MIC for remote microphone) and "auxillary in" (abbreviated AUX IN).

Output jacks are commonly used for private listening via a headset or an earphone; however, they can also be used for dubbing or "patching" music from one unit to another (e.g. from a radio to a tape recorder) using standard 1/8" patch cords as pictured in figures 4 and 5. This can prove to be a rewarding leisure time activity for anyone interested in preserving music, educational programs, talking books, radio interviews, plus a whole host of other mass media productions. Even some televisions are equipped with earphone jacks which readily lend themselves to a patch-cord hook-up. Within the past few years audio equipment has been introduced which combines a radio and tape recorder in one unit, thus eliminating the need for a patch cord. These units are becoming increasingly popular among the visually impaired because of their portability, ease of handling, and range of audio functions.

Input jacks are necessary to complete the dubbing process--sound is taken out of a playing unit via an output jack and "injected" into a re-

cording unit via an input jack. For example, to dub a cassette recording onto another cassette would require that one end of the patch cord be plugged into, say, the auxillary out jack of the playing unit, while the other end of the patch cord is plugged into the auxillary-in jack of the recording unit. When the principle of dubbing is understood, your client can go on to work with such things as dubbing telephone calls, music, class notes, recipes, and auditory maps. See figures 4 and 5 for examples of two common patchcord hook-ups.

Figure 4: Dub from Talking Book Machine to cassette recorder. Hook-up from headset jack to aux-in jack. Used to record from Talking Books and sound sheets.

Figure 5: Dub from cassette recorder to cassette recorder. Hook-up from earphone jack to aux-in jack. Used for making copies of class notes, music, books, and telephone information on cassette tape.

RECORDING TELEPHONE INFORMATION

Basically, there are two ways to record telephone information: paraphrasing information and direct line-in recording. The first method requires that the caller paraphrase the information he receives while he records his "end" of the conversation. The second method requires that

the caller set up a direct line-in dub of both parties so he can record the entire conversation, word-for-word.

Paraphrasing requires that the caller simply have a cassette machine to record his voice as he repeats important information given to him by the party at "the other end." Playing back such a conversation would sound something like this:

Call to Metro Transit:

MT Operator: (Conversation not heard)

Caller: "Hello, I was wondering when the Westnedge bus leaves downtown."

MT Operator: (Conversation not heard)

Caller: "Uh, huh, I see, fifteen to and fifteen after the hour."

MT Operator: (Conversation not heard)

Caller: "On what corner do I pick up the Westnedge bus"?

MT Operator: (Conversation not heard)

Caller: "Southeast corner of Michigan and Rose, huh."

MT Operator: (Conversation not heard)

Caller: "Thank you. Good-bye."

Some information is too difficult--if not impossible--to paraphrase because of the great detail that is involved. For this kind of information gathering it is necessary to record both ends of the conversation word-for-word. To do this, the caller must use a telephone induction cord which patches in the entire telephone conversation to a cassette recorder. Such a telephone patch is constructed by inserting the male plug of the induction

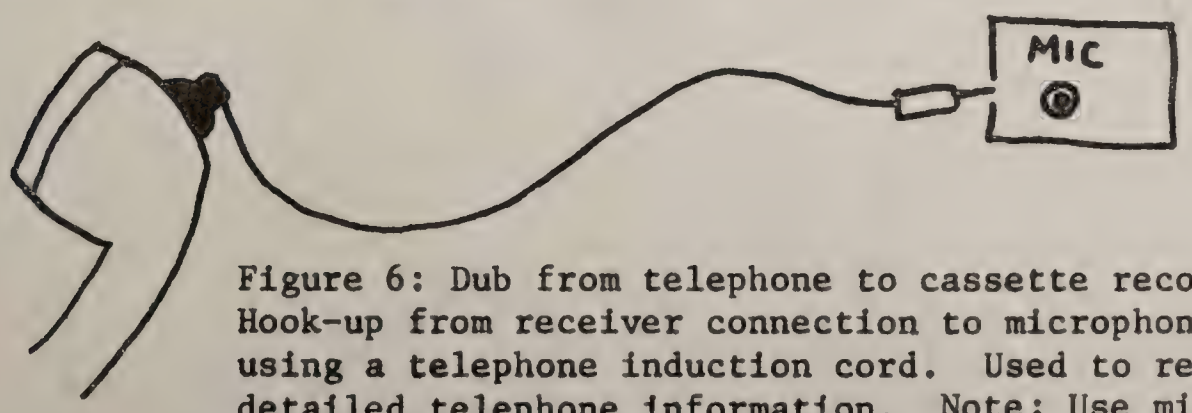

Figure 6: Dub from telephone to cassette recorder. Hook-up from receiver connection to microphone jack using a telephone induction cord. Used to record detailed telephone information. Note: Use microphone jack to get the proper amplification.

cord into the microphone jack, and fastening the suction cup near the earpiece of the telephone receiver. See Figure 6. It is only through such a direct line-in dub that the visually impaired caller could possibly note this information:

> (Pre-recorded) "This is the State Theatre answering service. Now showing is YOU LIGHT UP MY LIFE. This film is rated PG. Time schedule for Saturday, Sunday, and Wednesday are at 1:00 O'clock, 3:00 O'clock, 5:00 O'clock, 7:00 O'clock, and 9:00 O'clock. Time schedule for Monday, Tuesday, Thursday, and Friday are 7:00 O'clock and 9:00 O'clock. Thank you for calling."

REWINDING AN UNRAVELLED TAPE

Cassette tape may become snagged, unravelled, or for some other reason come spilling out of the cassette case. When this happens, tell your client not to panic for it is a relatively simple task to rewind the run-away tape. Rewind the tape by turning the left reel clockwise using the tip of a pencil, or by inserting an ink pen through the reel until it makes contact. See Figure 7. It is helpful to keep the tape separated while rewinding. The cassette case will straighten the tape automatically while you wind, if you do so slowly. To practice, take the tip of a pencil and pull some tape from an old cassette and then have the client rewind it.

If the tape is severely tangled or crumpled, it is easier to throw it away and start anew rather than toil and grieve over it. This is especially true of the less expensive tapes. Actually, clients should be encouraged

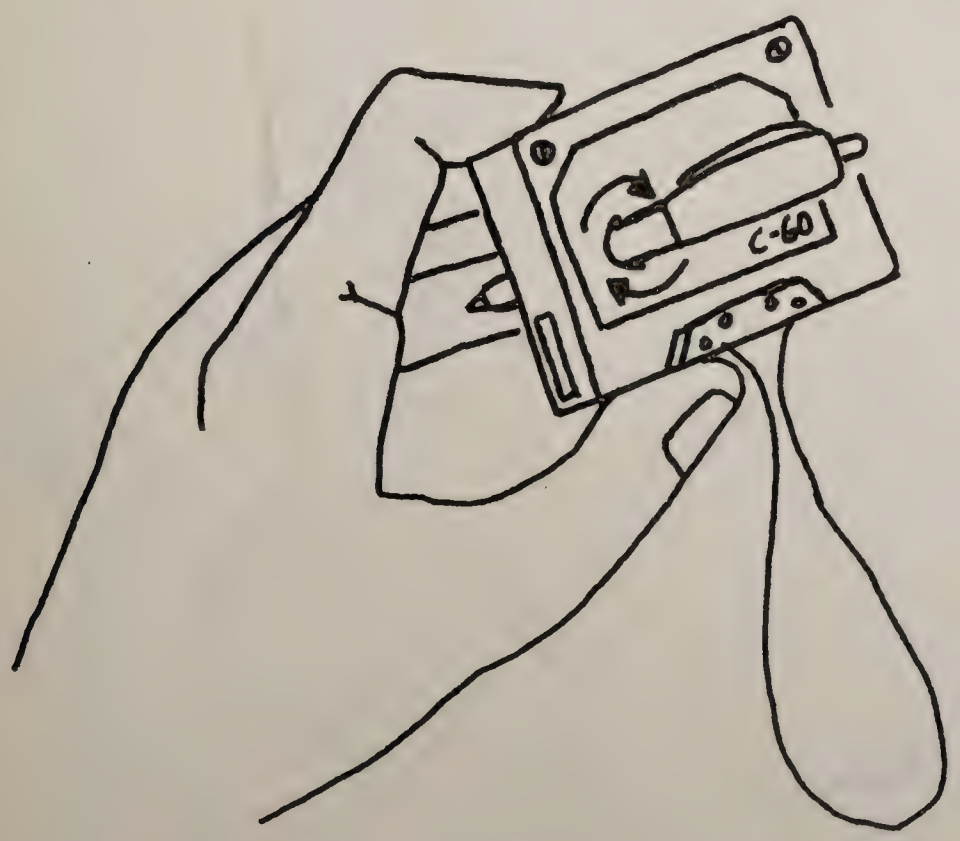

Figure 7: Rewind the tape by turning the left reel clockwise using the tip of a pencil, or by inserting an ink pen through the reel until it makes contact.

to use less expensive cassette tapes for voice recordings (e.g. the tapes packaged in quantities of 3 or 4 for a few dollars), and more expensive low noise tapes for making good high fidelity lecture and music recordings.

BULK ERASERS AND DUMMY PLUGS

There are basically three ways to erase a cassette tape: 1) record over previously recorded material 2) bulk erasing, and 3) using a dummy plug. The most common practice is to simply record over previously recorded material. When this is done, the erase head of the cassette machine neatly erases all sounds a split second before the record/playback head produces new ones. The disadvantage is that a confidential recording can be accidentally picked up and played because of an incomplete erasure. Another disadvantage is that a new recording and parts of an old one can be confused as one recording. All of this points to the need to have a way of erasing a recording completely, even when there are no immediate plans to make a new recording.

Bulk erasers, as pictured in Figure 8, allow for the quick and complete erasure of recordings. The cassette tape is simply held against the electro-magnetic eraser momentarily and the job is done. An erase or "dummy" phono plug, Figure 9, is just as effective but it requires more time--simply insert this plug into the microphone jack of the recorder and run the cassette tape completely through in the record mode. The dummy plug will override or "cut out" the built-in microphone. For the visually impaired client who does a great deal of taping, the bulk tape eraser is by far the most convenient and economical in terms of time usage. It is

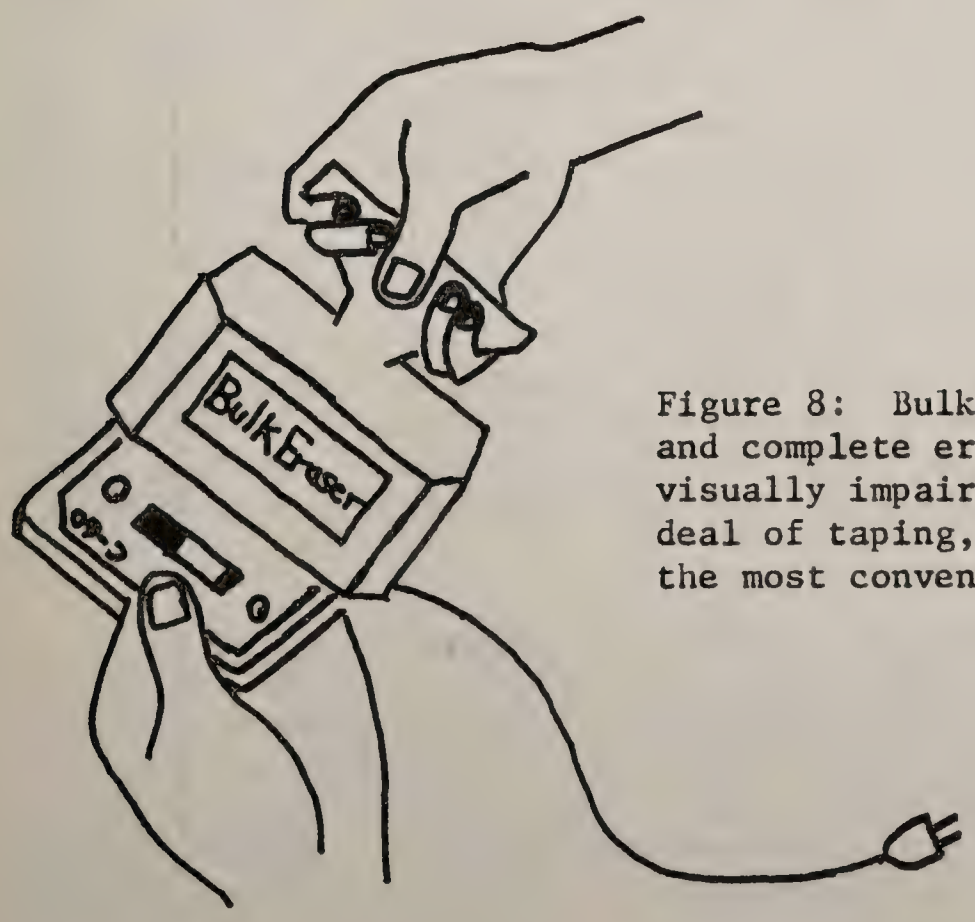

Figure 8: Bulk erasers allow for the quick and complete erasure of recordings. For the visually impaired client who does a great deal of taping, the bulk eraser is by far the most convenient method.

worth mentioning here that occasionally a recording will be protected by the removal of tabs (Figure 2), just to be accidentally erased by a bulk eraser.

Figure 9: Erase or "dummy" phono plug overrides condenser microphone to erase cassette tapes. Less expensive than the bulk eraser but a great deal slower.

INVESTIGATING COMMON CASSETTE RECORDER FUNCTIONS

As mentioned earlier, cassette recorders vary a great deal in design, or the way they are "packaged" and sold to the general public. They range in size, weight, and the recorder functions they offer. With all of this in mind, it is still possible to draw parallels from one recorder to another because of their general purpose, i.e. to record sound.

Power Supply: All tape recorders have a power supply. It may consist of an electrical hook-up to household current (AC) or power from batteries (DC), or both. Those recorders that use battery power may require the large "D" batteries or the very small "AAA" batteries, or even the miniature, long lasting, circular battery familiar to modern day circuitry. Some modified recorders and players are equipped with a nickel cadmium battery (nicad), which recharges on household current and provides seemingly indefinite amounts of portable listening before the battery needs to be replaced. Some batteries are easily removed and replaced while others like some nicads are sealed into the cassette machine, so that the machine must be sent back to the factory for battery replacement. Some non-rechargeable batteries can be replaced by rechargeable battery packs. These packs are made to be removed from the machine by the user, and placed in battery pack chargers that operate on household current. Many cassette machine models can be adapted with battery packs and thus become more economical for everyday use.

Function Controls: The controls on cassette recorders can vary from a one-handed lever control to a row of keys or buttons. Piano key controls are common to most table model cassette machines. Working from right to left, a common array of keys will begin with the "stop" key. This key is sometimes combined with the "eject" function and thus it becomes the "stop/eject" button. On those machines where the eject and stop controls are separate, the eject button will usually be found near the cassette well

door. The key to the left of stop is the "play" key or the control that initiates tape playback. On some machines the play button is color coded to differentiate it from the others. Left of play is the "fast forward" control which speeds the tape forward for preview. The fast forward control is often marked with an arrow pointing to the right to indicate the gathering of tape by the take-up reel. Left of fast forward is the "rewind" control which backs the tape up for review. This button is often marked with an arrow pointing to the left indicating the gathering of tape by the supply reel. To the left of the rewind control is the "record" button which, when depressed along with the play button, starts the recording process. The record button on most models is color coded for identification, usually in red.

Phono jacks: The jacks available on common cassette machines usually include a remote microphone jack, an earphone or monitor jack, an AC power jack, and possibly an auxillary out jack. See "Direct Line-In Recording" for a more thorough discussion of phono jacks.

Popular Features: Features that rate high by visually impaired clients are portability, availability and cost of power supplies, range of recorder jacks for such activities as private listening and dubbing important materials, the audible "click" of the end of tape shut-off mechanism; and, for some, varied speed control, indexing capabilities, and 2-speed, 4-track record and playback. The condenser microphone is a common feature which is also highly rated because it eliminates the need to carry an extra piece of equipment, i.e. the remote microphone. A pause button or pause switch control is also very useful for recording classroom notes, and for taking notes from tape. The pause feature will allow the client to stop and start recording with an almost silent push of a button, so the classroom is not being disturbed by the "click/klunk" sound of the stop button. When taking notes from a recording, the pause feature allows the client to stop and start the recording without losing a single syllable.

RECOMMENDING CASSETTE RECORDERS

There is no one specific model of tape recorder that is considered ideal for the visually impaired--each person must purchase equipment on the basis of personal need and personal financial resources. At such times, the rehabilitation teacher can be invaluable if he has a good working knowledge of his client and the tape recorder market. To illustrate, consider . . .

. . . the client	. . . the recorder
Retired Farmer	Modified, 2-speed, 4-track, AC/DC recorder with condenser microphone, varied speed control, tone indexer, and a rechargeable battery. Weight 7 lbs. Approximately $130.
Middle aged volunteer worker	
Young, mentally retarded shut-in	

. . . the client	. . . the recorder
College student with no secondary disabilities	Hand-held recorder with pause button and AC/DC adaption. Weight 1 lb. $44.
Elderly homemaker	Table top, piano key recorder with AC/DC capabilities and condenser microphone. Weight 3 lbs. $18-25.
Middle aged man interested in auto mechanics training	Hand-held recorder with pause switch, AC/DC capabilities, and condenser microphone. Weight 1 lb. $150. Fifty dollar minimum maintenance charge.
Teenager who loves dubbing music	Mini-recorder with standard jacks, AC/DC 12 volt capabilities, and condenser microphone. Uses micro cassettes. Weight 5 oz. $40-150.
Young mother who wants to write cassette letters to friends and record recipes	AM/FM radio-tape recorder with push button control, AC/DC, pause switch, and condenser microphone. Weight 4 lbs. $100.
Young man with poor coordination who operates his own business	One lever control recorder with AC/DC adaption. Jacks require special phono plugs and cords. Weight 2½ lbs. $80.
High school teacher	
College student who is a brittle diabetic and tires easily when carrying a moderately heavy load of books and supplies	
Vending stand operator	
Elderly lady in nursing home	

CLEANING TAPE CONTACT POINTS

Every 2-3 weeks, or sooner depending on use, it is important to clean the parts of the cassette machine that come in direct contact with exposed tape. These parts pick up dirt and foreign particles that can alter the quality of recording and playback.

Clean the capstan, pinch roller, record/playback head, and erase head (Figure 10) with a cotton swab dipped in denatured alcohol. These parts are readily accessible on most tape recorder models. Simply open the door to the cassette well, push the "play" button to bring these parts forward, and clean. When cleaning the pressure roller and capstan, it is important that the cotton swab is kept to the right of the capstan--this will prevent the cotton swab from being pulled in and trapped between the capstan and the pressure roller.

Some visually handicapped people find that it is easier to clean the various parts, and to load and unload the cassette tape if the cassette well

door is permanently removed. Some doors can be removed quite easily while others are so designed that to remove them would be a delicate process, and it may hinder a recorder function such as tape eject. Models differ a great deal, so some thought should be given to the particular design of the recorder before removing the cassette well door.

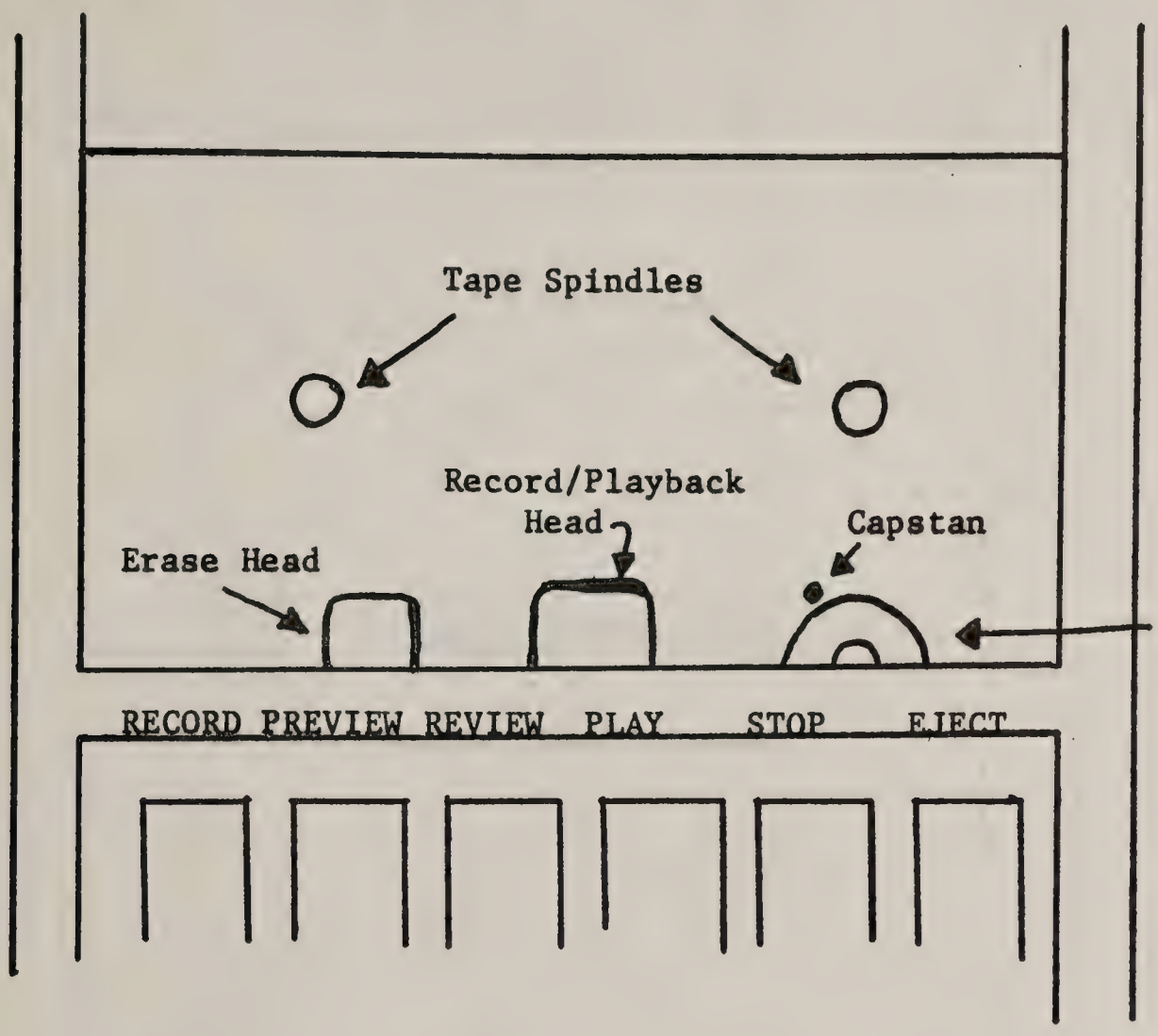

Figure 10: The erase head, record/playback head, and pinch roller must be cleaned frequently because they make actual contact with the cassette tape.

DEMAGNETIZING

Through frequent use, the record and playback head becomes magnetized which, in turn, distorts sound quality. Consequently, at every cleaning session the recorder head should be demagnetized by an electric head demagnetizer, or--as it is sometimes called--a degausser.

To demagnetize the record/playback head, push the play button to bring this mechanism forward into view. Place a finger atop the head to act as a guide. Hold the demagnetizer two or three feet from the head, turn it on, and slowly move it toward the head. Bring the demagnetizer as close to the head as possible without touching it. The client must exercise great care not to scratch the head with the demagnetizer. Pause momen-

tarily and then move the demagnetizer away slowly, turning it off when it is once again two or three feet from the recorder head. See Figure 11.

There are specially designed cassettes on the market that will clean and demagnetize a record/playback head in one process. This may be an easier method for some clients, but it should be stressed that some tapes are so constructed that they will permanently damage a recorder head if improperly used. Regardless of the method, it is important that the cleaning and demagnetizing be done so that the client can receive the best recording and playback his particular machine can offer.

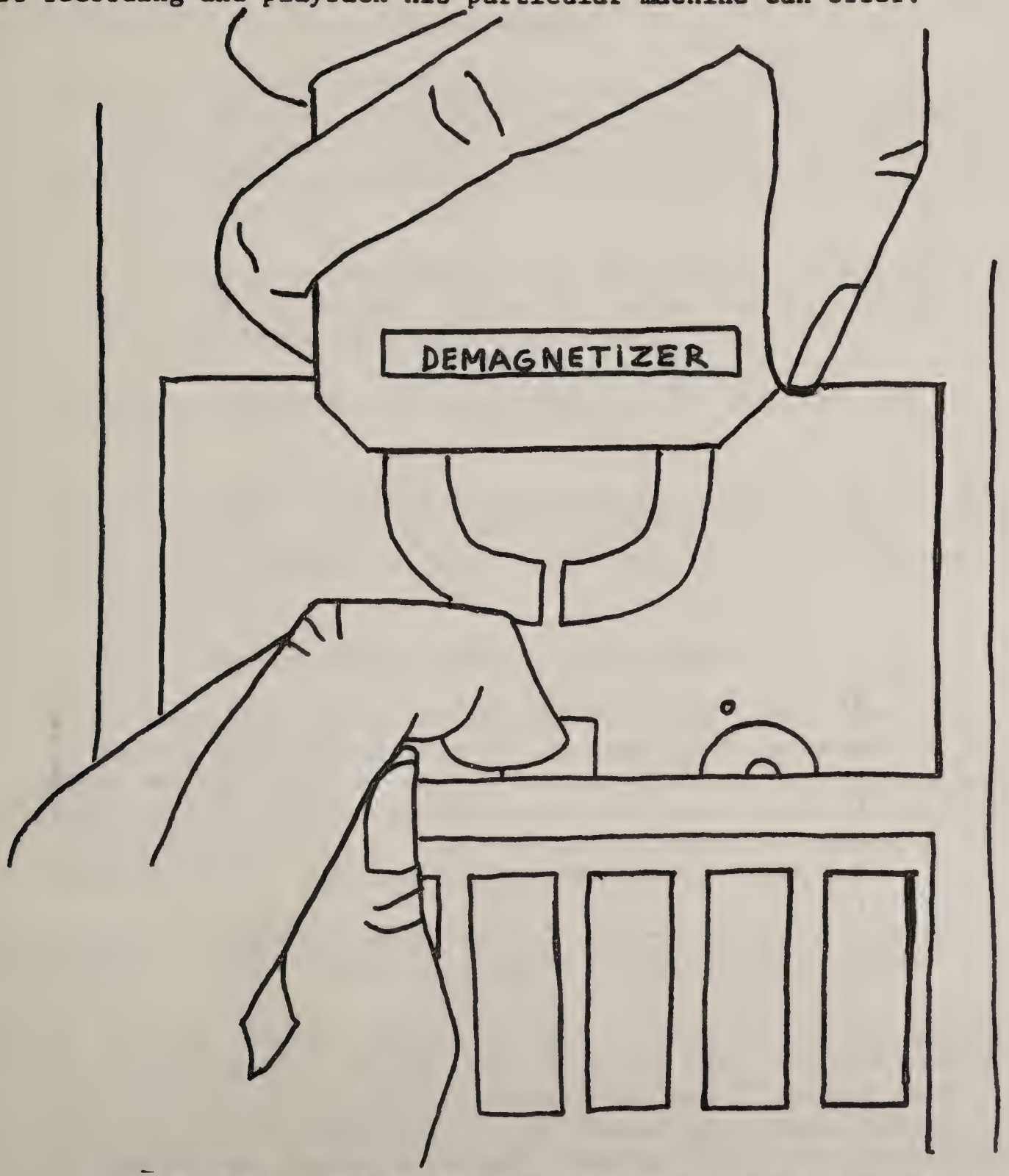

Figure 11: The client can avoid touching and scratching the record and playback head with the demagnetizer if he places a finger atop the head to act as a guide.

SUGGESTIONS FOR TAPING RECIPES*

1. Let tape run for about 30 seconds before beginning recording.

2. When taping begins, state number of tape and side of recording, e.g. "This is tape 1, side 1."

3. (Optional) State name and date of recording as points of reference.

4. Title material, e.g. "Cookie Recipes."

5. Formulate a table of contents. If the reader has a number of cookie recipes to be taped, he should name and number each recipe, e.g. "(1) Sugar cookies (2) Peanut Butter Cookies (3) Chocolate Chip Cookies," and so on. When table of contents is complete, state, "End of contents."

6. After the table of contents, allow the tape to run for 20-30 seconds before recording recipes. This will allow the user to add other recipes to the table of contents at a later date.

7. State name and number of each recipe at the begining and end of its reading.

8. Provide a general listing of ingredients initially so the user can gather supplies. Record specific amounts along with cooking instructions, e.g. "Combine two cups flour, one cup sugar, and one-half teaspoon salt."

9. Index each recipe with an audible tone indexer.

10. If the tape runs to the end of tape 1, side 1, and the reader is in the middle of a recipe, rewind the tape to a convenient stopping place and say, "End of tape 1, side 1." State number and name of recipe being recorded and indicate that the recipe will be continued on tape 1, side 2, e.g. "End of tape 1, side 1. Number 3, Peanut Butter Cookies, will be continued on tape 1, side 2."

11. On side 2, state, "Tape 1, side 2, Cookie Recipes; continuing with number 3, Peanut Butter Cookies."

12. If the tape runs to the end of tape 1, side 2, and the reader is in the middle of a recipe, rewind to the last complete recipe and say, "End of tape 1, side 2, Cookie Recipes." Do not carry a recipe from one tape to another. If the reader has enough cookie recipes to require two tapes, he should organize the second tape in a similar manner.

*Adapted from a work by Betty Roberts, Rehabilitation Teacher.

GLOSSARY

AC: Alternating Current. Also known as household current.

AC/DC Capability: Audio unit can be powered by household current or by a portable battery supply.

Automatic Level Control (ALC): This feature automatically levels the volume of a recording to prevent the annoying highs and lows. A recorder with this feature is usually not used for recording music.

Automatic Stop: A cassette recorder mechanism usually found between the erase and record heads which automatically shuts the machine off at the end of the tape. This process is usually accompanied by an audible "click" which acts as an excellent cue for the visually impaired person.

Battery Pack: One or more rechargeable batteries placed in a single case for ease in handling. The batteries of many tape recorder models can be replaced with the more economical rechargeable battery packs.

Bulk Tape Eraser: An electro-magnetic device that can erase an entire cassette or open reel tape in a matter of seconds.

Condenser Microphone: A small microphone that is contained within the cassette recorder. As opposed to the remote microphone, the condenser microphone is commonly referred to as a "built-in mike."

Cue and Review: This feature allows the operator of the cassette machine to go instantly from play to fast forward or rewind without turning the machine off. The instant the fast forward or rewind controls are released, the machine resumes normal playback. This feature is a must for the visually impaired person who wishes to skim tape recorded lectures and textbooks.

DC: Direct Current. Also known as battery power.

Direct Line-in Recording: An electrical hook-up between an audio unit and a tape recorder for purposes of recording information or music without interference from ambient room noises.

Dubbing: See "Direct Line-in Recording."

Dummy Plug: A closed-end phono plug that overrides the built-in microphone when plugged into the microphone jack. This completely erases the cassette tape when the machine is in the record mode. A slow but effective method for erasing tapes.

Indexing: This is the process of placing on tape low fidelity sounds to distinguish pages, chapters, sections, and any other specific items of information. These low fidelity sounds are scarcely audible at normal playback speed; however, on fast forward or rewind these low fidelity sounds become high fidelity beeps which are clearly audible and used for locating specific information. On recorded textbooks, for example, one beep represents a page and two beeps a chapter.

LED: Light Emitting Diode.

LED Battery Indicator: A light that flickers when the battery power of a cassette machine is low; usually red or orange in color.

Leader Tape: A portion of non-recording tape roughly 8-12" long used to connect the recording tape to the supply and take-up reels.

Master Machine: The audio unit that produces the sound for the tape recorder making the copy in a direct line-in dub.

Nicad: Abbreviation for nickel cadmium battery, a long lasting rechargeable power source.

Omni-Directional Microphone: A microphone that will pick up sound all about it. As opposed to a uni-directional microphone.

Patch Cord: An electrical cord used to connect two pieces of audio equipment for purposes of direct line-in dubbing, or for transfering sound to a speaker.

Pause Switch: A feature on some cassette recorders that allows the user to halt recording or playback without shutting the machine off. The pause switch prevents the annoying "click-klunk" sound of the on/off switch when recording. It also allows the user to stop and start playback without losing bits and pieces of words. This is a must feature for the visually impaired college student.

Philips Cassette: A cassette tape design used by virtually all major manufacturers of tape recording equipment. It refers to the size, shape, and basic design of a standard cassette tape.

Pitch Corrector: A device that maintains the correct vocal pitch when the speed of a tape is increased or decreased by a varied speech control. A pitch correction device allows the visually impaired student to replace the "chipmunk chatter" of rapid speech reading with the sound of normal vocal pitch.

Playback Volume Control: Volume control that can be adjusted on tape playback only. This control does not effect sound while recording.

Pratt-Smoot Act: An act of Congress that established the Division for the

Blind and Physically Handicapped (DBPH) within the Library of Congress. Now known as the National Library Service for the Blind and Physically Handicapped. The National Library is authorized by this same act to provide a variety of library services to the visually and physically handicapped through the establishment of regional state libraries. Among these services is the distribution of cassette players and cassette books.

Record Volume Control: Volume control that adjusts the volume while recording. It has no effect on playback volume. Newer cassette machines have eliminated the record volume control and in its place have introduced an automatic system of controlling record volume, i.e. Automatic Level Control.

Slave Machine: A cassette recorder that records sound from another audio unit, or "master machine," via a patch cord or some other electronic hookup.

Standard Recording Speed: Common cassette recorders are engineered to record at 1-7/8 inches per second (1-7/8 ips) which is considered the standard recording speed. The length of a cassette tape is measured according to how many minutes is required to play both sides at this speed. Therefore, a C-90 tape will play 45 minutes on each side at 1-7/8 ips, or a total of 90 minutes. Some cassette machines are engineered to record and playback at 15/16 ips, which provides twice the record and playback time because it is half the standard recording speed.

Take-up Reel: The reel that gathers the cassette tape after it passes by the record/playback head.

Twelve Volt Capability (commonly written 12 v.): Audio unit can be powered by a 12 volt car battery using a cigarette lighter power cord.

Varied Speech Control: A feature on cassette recorders which allow the visually impaired student to speed up a recording to speed read the contents of the tape, or slow down the recording to take notes or pay particular attention to a specific bit of information.

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